



**Monday, May 12, 2014**

Pete Dessaulles  
Brian Horn



# **NMMSS-Training Topics**

- NMMSS Performance 9:30-10am
- Obligation Accounting 10:30-11:00
- Reports to the IAEA 11:00-11:20
- Tips from NMMSS staff 11:20-11:40



# This Afternoon

- Denver Ballroom
  - NMMSS Subcommittee Meetings
    - Reactor 1:30-3:00 pm
    - Foreign Obligations 3:30-5:00 pm
- Gold Coin Room
  - One-on-one NMMSS training 1:30-5:00
  - NMMSS Overview talk by Pete Dessaules



# **NMMSS Overview**

## **Monday, May 12, 2014**

**Pete Dessaulles**



# NMMSS

- **N**uclear
- **M**aterials
- **M**anagement and
- **S**afeguards
- **S**ystem



## NMMSS (continued)

- U.S. Government's database to track movements and inventories of nuclear materials
  - Owned by Department of Energy (DOE)
  - Operated by Link Technologies, Inc. Germantown, Maryland
  - Nuclear Regulatory Commission (NRC) utilizes NMMSS through an interagency contract with DOE



## **NMMSS (continued)**

- Relied on for:
  - Treaty commitments
  - Congressional law
  - Domestic rules and regulations
  - Business practices
  - Health & Safety issues
  - Public Trust
  - Government needs



## **U.S. sites report to NMMSS**

- Imports and exports
- Domestic movements
- Inventory adjustments
- Inventory
- Changes of “Ownership” and “Project Numbers”





# NMMSS History

- 1940's & 50's: data was hand written into ledgers
- 1960's: Mainframe computer & punch cards
- Early 1990's: Personal Computer system, using DOS & FoxPro
- 2009: PC Windows and SQL Server 2003



## Four forms for submission of data to NMMSS

- **DOE/NRC Form-741**  
(Nuclear material Transaction Report)
- **DOE/NRC Form-742**  
(Material Balance Report)
- **DOE/NRC Form-742C**  
(Physical Inventory Listing)
- **DOE/NRC Form-740M**  
(Concise Note)



## **Unique 3 character NMMSS account code for each site**

- ~ 800 accounts active today
- ~745 accounts for NRC sites
- ~ 55 accounts for DOE sites
- As of today
  - ~350 NRC site accounts have material
  - ~55 DOE site accounts have material



## One system – two sets of rules

- DOE and NRC have slightly different needs and requirements of NMMSS
- DOE:
  - NMMSS tracks 18 “DOE-owned” materials
  - Requires each DOE site to report their inventories of the 18 materials every September 30<sup>th</sup> to NMMSS
- NRC:
  - NMMSS tracks 8 materials at licensee sites
  - Requires each NRC site, with 1 unit or more of material, to report inventory at least once a year to NMMSS



## DOE requires information on eighteen materials to NMMSS:

- Depleted uranium
- Natural uranium
- U-235 in enriched uranium
- Uranium in cascade
- Thorium
- U-233
- Lithium-6
- Plutonium
- Pu-238
- Pu-242
- Americium-241
- Americium-243
- Curium-244
- Curium-246
- Neptunium-237
- Tritium
- Deuterium
- Californium-252



## **NRC requires information on eight materials to NMMSS:**

- Depleted uranium
- U-235 in enriched uranium
- Thorium
- Plutonium
- Natural uranium
- Uranium in cascade
- U-233
- Pu-238



# Reporting units of materials

**Kilogram:** Depleted U, Natural U, Thorium,  
Lithium enriched in Li-6

**0.1 Kilogram:** Deuterium

**Gram:** Plutonium, U-233, U-235 in enriched U,  
Pu-242, Am-241, Am-243, Np-237  
Curium-244, Curium-246  
Uranium in enrichment cascade

**0.1 Gram:** Pu-238

**0.01 Gram:** Tritium

**Microgram:** Cf-252



## Data security

- NMMSS database is classified “Secret/RD”
- Physical gaps between NMMSS database and outside world
- Only the NMMSS operator can directly access data from NMMSS database
- Unclassified and Classified data is comingled in NMMSS





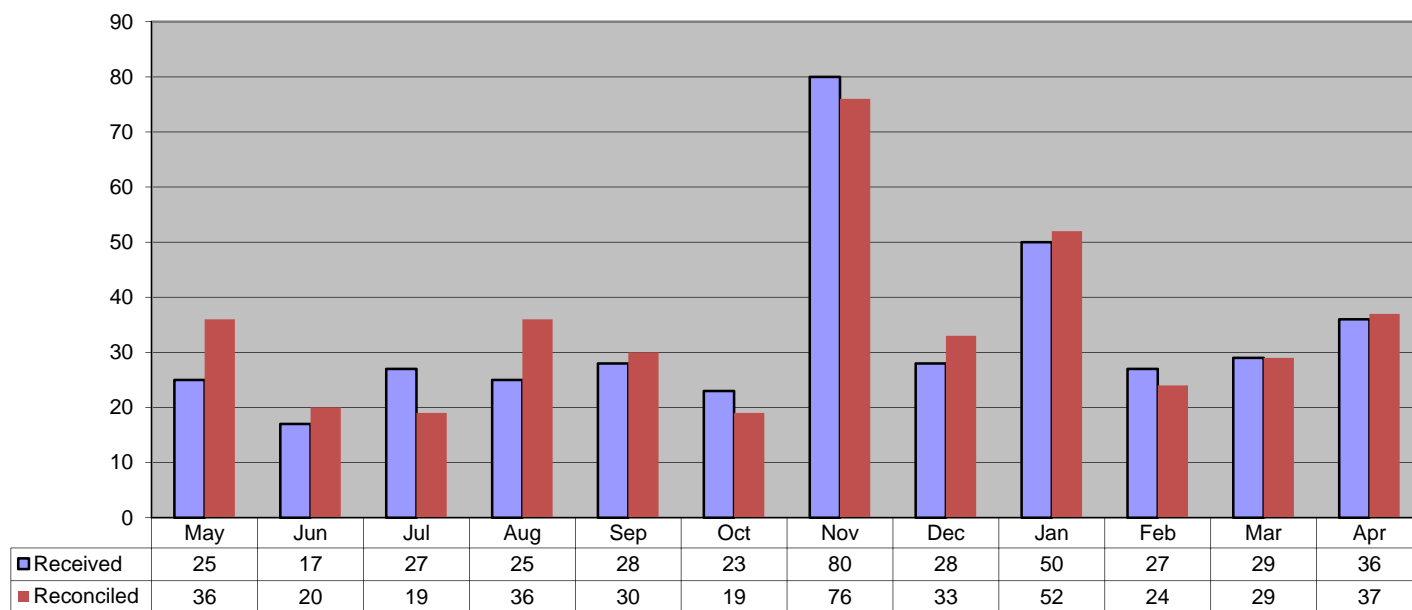
## Data Security continued

- DOE sites
  - Most report classified information to NMMSS
- NRC sites
  - Most report “business proprietary” information to NMMSS
  - Some report “Safeguards Information” to NMMSS
  - Less than 10 report classified information to NMMSS

# NMMSS Operation

Reconciliation of NRC Sites  
May 2010 - April 2011

Material  
Status  
Reports



# Foreign distribution of NMMSS Reports

- To the International Atomic Energy Agency (IAEA):
  - Imports/exports of nuclear material, **monthly**
  - Inventories and movements of nuclear material for “IAEA selected” facilities, **yearly & monthly**
  - Imports/exports of uranium ore concentrates-**monthly**
  - Quantity of civilian plutonium-**yearly**
  - Special reports - **as requested**



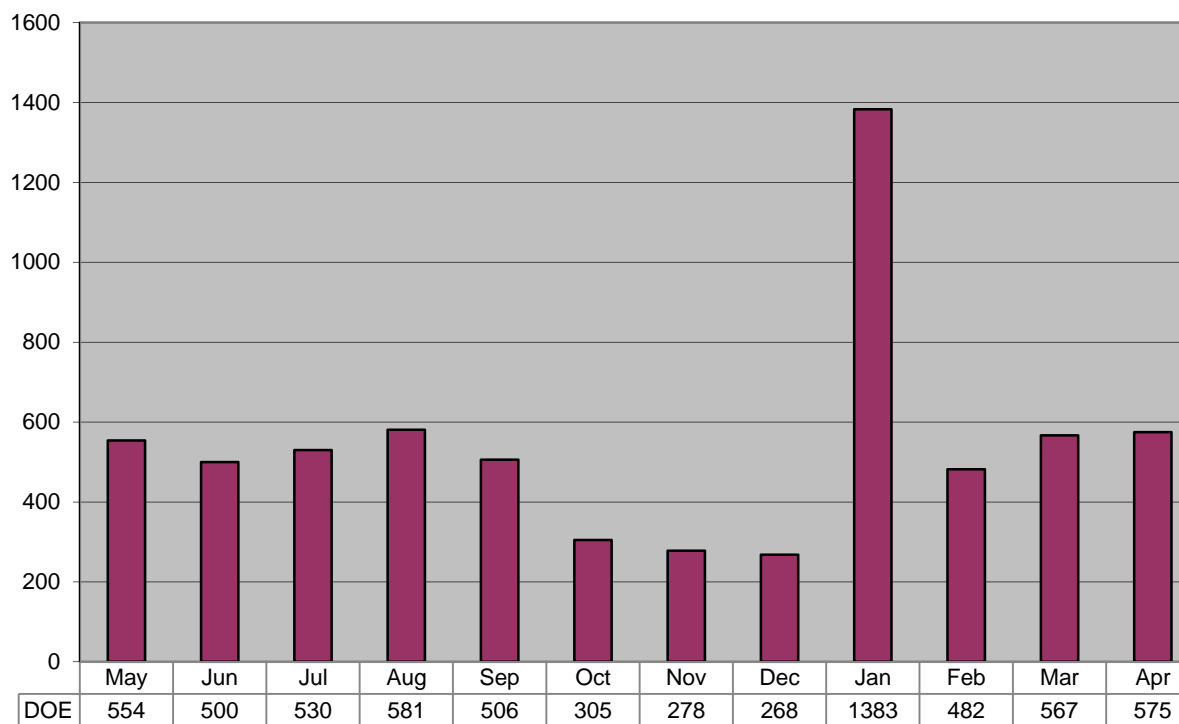
# Foreign distribution of NMMSS Reports, continued

- **Agreements for Peaceful Nuclear Cooperation:**
  - imports, exports, production and inventories of eight materials (obligation codes) –**weekly, monthly & yearly**
- **DOE/Minatome HEU Transparency Program**
  - Imports, exports and transfers of nuclear materials (“WR” obligation code) –**monthly & yearly**

# NMMSS Reports

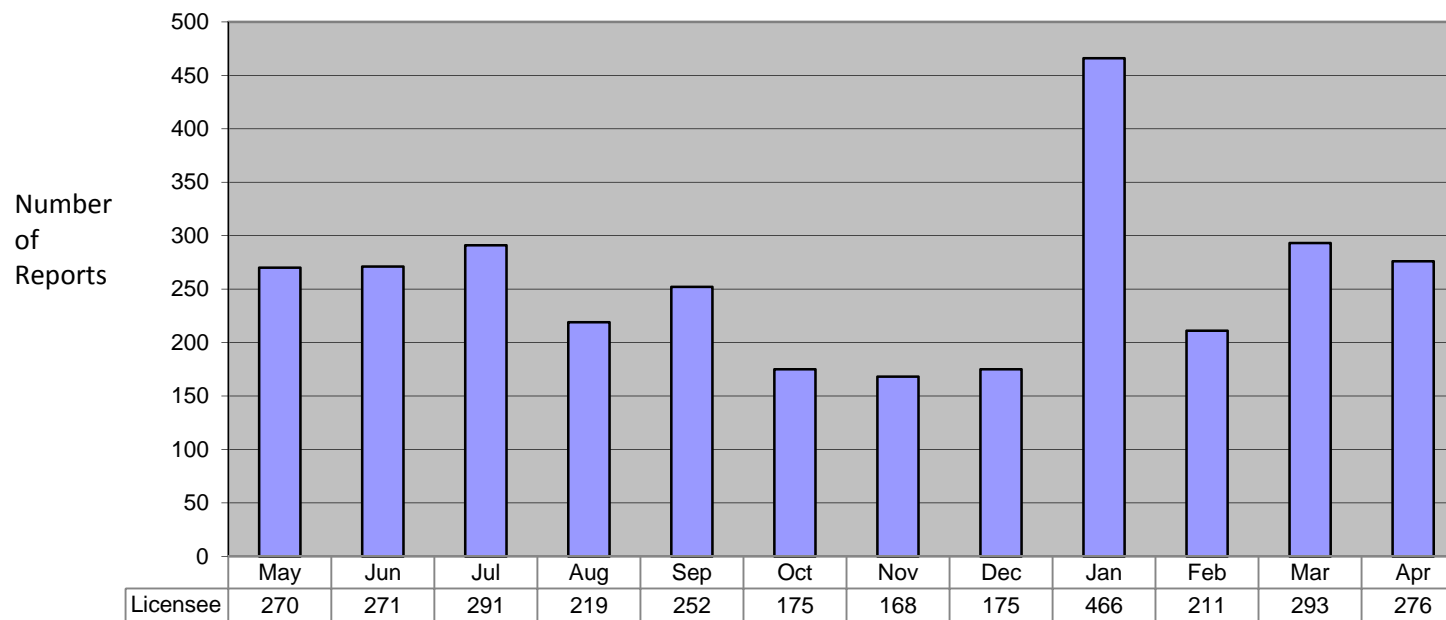
Standard NMMSS Reports Issued– DOE sites  
May 2010 - April 2011

Number  
of  
Reports



# NMMSS Reports, continued

Standard NMMSS Reports Issued-NRC sites  
May 2010 - April 2011





# Desired improvements

- Simplify process for sites to report data to NMMSS
  - Use of internet
  - Use of e-mail
- No new burden on sites
- Keep reporting simple for reporting sites
- No need for NRC or DOE to perform a rule change
- Limit or avoid the need for reporting guides/documents to be changed
- Periodic review of reporting to ensure no unnecessary data collection is imposed



# Welcome to Team NMMSS!

- We strive to provide you, the nuclear facilities, support to make NMMSS a success - resources
  - NMMSS Newsletter - SAMS
  - NMMSS guidance documents, D-23 & D-24
  - NRC NUREG/BR-0006 & 0007
  - Updated D-2/3/15 - DOE's Order 474.1 NMC&A
  - DOE's NMMSS Users Guide
  - NMMSS Training [**Germantown, MD & On-site**]
  - NMMSS Users & Training Meeting
  - Electronic fill-able NMMSS Forms [**introduced last year**]





## Team NMMSS-your role

- Your support is needed to maintain data integrity
  - Update your D/2, D/3 facility information
  - Do your best in reporting
  - NMMSS Reporting questions
    - Ask for help
    - Contact NMMSS staff



# The Annual User & Training Meeting

- Participate in the meetings
- Ask questions & share your knowledge
  - Sessions, hallway, breaks
- If you state that you have violated regulations, we will report your statement!
- A “What if” question is not a statement of wrong doing